



**BEING
LESS
WRONG**

Scientific Literacy

1. Anecdotal evidence is the weakest kind. One person's experience might say little about widespread trends or their implications. Strong evidence comes from more objective sources, like rigorous research, statistics, or survey data. This is true even if an anecdote aligns with your politics.
2. Don't know how to read a research paper? That's okay. Check out online resources like Duke University's "How to Read a Scientific Paper," Indiana University's "Read a Scientific Paper," or Harvard's "How to read a research paper."
3. One scientific study, unless exceptional, proves nothing. It provides evidence, but that evidence is not definitive without a number of other credible studies showing the same results.
4. Similarly, looking at the whole body of research on a scientific question will give you much more certain answers than looking at a handful of studies.
5. Want a shortcut to understanding the findings of a body of research? Find a meta-analysis, or one study analyzing the results of dozens or hundreds of studies on the same topic. Experts in their field can also summarize a body of research in an accessible way for a general audience.

Media & Information Literacy

6. Always check the details. Headlines can be misleading. Stories can lose their context through a game of telephone. Even acclaimed journalists, writers, scientists, and educators can make mistakes. What is the original claim, and how does that compare to what you heard?
7. See a compelling news story or factual claim on social media? Put it in a mental box labeled “thing I heard” until you fact-check it yourself. Do not put it in the “fact” box until you have good evidence to back it up, such as 2-3 articles from credible sources where the details match.
8. What’s a credible source? Check out The News Literacy Project’s infographic, “Is it legit? Five steps for vetting a news source,” to help you decide. Ad Fontes Media also ranks news sources by partisanship and reliability in their “Media Bias Chart,” available on their website.
9. Do not present a thing you heard as a fact until you know it is.
10. We tend to trust our loved ones when they share a fact about the world. Unfortunately, they're just as fallible as the rest of us. Repeat #7.

Argumentation

11. If you're reading an op-ed in a newspaper, watching a documentary, listening to an educational podcast, or anything trying to educate or persuade you, ask yourself: What are the main points being made? What does the speaker want me to take away from this? What are their motivations? Sometimes these answers sit on the surface, and sometimes they require careful thought to uncover. Not everyone is honest about their intentions, so sometimes the stated goal of a work contradicts the real purpose.

12. Context is everything. The same set of facts can lead you to very different conclusions if the circumstances in which they occurred are conveniently left out.

13. Stay skeptical, and ask questions. Some arguments are compelling on the surface, but fall apart under closer inspection. Ask yourself, are there plausible alternative explanations? If this argument is taken to its logical conclusions, does it hold up? Are there circumstances in which this argument does not hold up? Does the argument contradict itself anywhere? What assumptions does this argument rely on, and do they make sense?

14. Familiarize yourself with common logical fallacies, or reasoning flaws, and cognitive biases, which cause people to think illogically. Yourlogicalfallacyis.com describes a range of common logical fallacies with examples. Yourbias.is describes cognitive biases.